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DEPR:

In accordance with the invention, assembly 10 preferably includes medication 54, such as a pill or pills, positioned and removably held between folded portions 14, 16, as illustrated in FIGS. 3 and 4. In addition, assembly 10 may include an information-containing micro film, micro fiche, laser disk, computer chip and/or a computer program 56 positioned and removably held between folded portions 14, 16. Medical and/or other information may also be positioned or stored within assembly 10 by means of a bar code (not shown) which can be located on any one of surfaces 26, 26', 28 or 28'.

US-PAT-NO: 4733362

DOCUMENT-IDENTIFIER: US 4733362 A

TITLE: Drug dispensing apparatus with a printer having programmable format

DATE-ISSUED: March 22, 1988

US-CL-CURRENT: 700/235, 206/534 , 221/12 , 221/15 , 221/197 , 221/2 , 400/279 , 400/61 , 400/62 , 400/76 , 53/75

APPL-NO: 6/ 778033

DATE FILED: September 20, 1985

FOREIGN-APPL-PRIORITY-DATA:

FOREIGN-PRIORITY-APPL-NO: JP 60-69773

FOREIGN-PRIORITY-APPL-DATE: April 2, 1985

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DEPR:

Referring also to FIG. 2, the drug packing mechanism 23 accommodated in the lower portion 11b of the dispensing unit 11 includes a roll 7 of a packaging sheet formed by winding a packaging sheet 6 folded double, an arm member 8 pivotally connected at its one end, to a frame (not shown) of the lower portion 11b and contacting at its other end. The surface of the sheet 6 applies a tension thereto. A printer 30 prints patients' names, code numbers, time for taking the drug doses, etc. on the packaging sheet 6. Line feed rollers 3 are driven by a stepping roller (not shown). A longitudinal heat seal mechanism 9 applies longitudinal seals to the packaging sheet 6 and has a blade 4 to form notches for providing separate packets. A hopper 2 communicates with the drop

passage to hold the tablets introduced thereinto introduces the tablets into the separate packets upon opening of a shutter (not shown). A lateral heat seal mechanism H closes upper openings of the separate packets after accommodation of the tablets therein. A pair of feeding rollers 1 intermittently displaces the packaging sheet one at a time in the longitudinal direction by the length for one packet. The printer 30 is arranged to print necessary information on the sheet 6 in a direction intersecting at right angles with the longitudinal direction of the packaging sheet 6-as-shown-at 50 and 51 in FIG. 3 according to a predetermined format (to be described in more detail later).

US-PAT-NO: 5118369

DOCUMENT-IDENTIFIER: US\_5118369 A

TITLE: Microlabelling system and process for making microlabels

DATE-ISSUED: June 2, 1992

US-CL-CURRENT: 156/64,235/462.01 ,250/566 ,283/81

APPL-NO: 7/ 572164

DATE FILED: August 23, 1990

----- KWIC -----

ABPL:

A method is disclosed for both making microlabels and for using these labels to provide a unique system for identifying an integrated circuit (IC) die on a wafer, in one embodiment, by applying a color bar encoded microlabel, small enough to be placed on the surface of the die, with the microlabel being on the order of 2 mm.times.2 mm in overall size. In one embodiment, the label consists of a number of colored lines or bars similar to a black/white bar code, with each bar having a distinct color or hue, the width of the bars being in the 5-120 micron range in terms of width, the bars being either contiguous or separated by a thin bar of distinct color. The microlabels, whether color bar or black/white coded, are applied preferably at the wafer probing stage of manufacture, wherein each die is labelled with the bar code best expressing the

parameters the manufacturer is desirous of using for further processing and/or ultimate sales and/or use. A specialized real time photographic technique is disclosed in one embodiment for forming the ultra-small labelling lines on the microlabel's substrate, with the process enabling each microlabel to be different and manufactured on-the-fly to carry information associated with a given die. Further, each die may be labelled with additional microlabels in the subsequent stages of manufacture. Additionally, each capsule or device package containing a die may also be tagged with one or more microlables. Other techniques for producing the microlabels, whether color coded or black and white, include vapor deposition, metallic colored foil layering, each of the above requiring shaving of layered sheets and deposition of colored strips in the furrows of etched or scribed sheets. In a further embodiment, ink jet stripes are laid down on a moving web or substrate in parallel multi-colored rows. The microlabels may be utilized in any application in which product identification requires exceedingly small labels. Moreover, microlabels bearing other indicia such as letters or numerals, either with or without bar codes, offers IC manufacturers and others a unique microlabelling capability.

US-PAT-NO: 5181189

DOCUMENT-IDENTIFIER: US 5181189 A

TITLE: Device for the storage and time-regulated dispensing of drugs

DATE-ISSUED: January 19, 1993

US-CL-CURRENT: 368/10,206/534 ,221/2

APPL-NO: 7/ 125298

DATE FILED: November 25, 1987

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DEPR:

This improved device enables the user to load and store even complicated dosing routines with one move of the hand. For example, a dosing routine might require administration of an initial two pills three hours apart, followed by a gap of eight hours (overnight), followed by administration of single pills the next day on a three hour cycle, and so on. The code containing this information may also be located on the drug container itself and read in automatically when the signaling device and drug container are connected.

In this embodiment, the data input device generally is best situated in that portion of the signaling device which lies adjacent to a section of the surface of the drug container containing the encoded information. For example, if the signaling device has a plug-in slit into which the side edge of a blister pack is inserted--(see above noted West German patent 33 35 301) it may be very suitable to mount the input reader in the slit into which the blister pack is inserted. The information on the blister pack thus can be read in completely automatically when the blister pack is inserted into the opening of the signaling device.

US-PAT-NO: 5231938

DOCUMENT-IDENTIFIER: US 5231938 A

TITLE: System for containment and handling of hazardous materials

DATE-ISSUED: August 3, 1993

US-CL-CURRENT: 110/346,110/235 ,206/524.1 ,206/524.5 ,588/249

APPL-NO: 7/ 816388

DATE FILED: December 24, 1991

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BSPR:  
In one preferred embodiment each capsule has a visual identifying means on its surface for indicating the type of material contained in the capsule . This may comprise a background color on the capsule, to indicate generically a type of material in the capsule (such as acid, base, corrosive, flammable, etc.), and one or more color bands different from the background color, to indicate more specifically the material in the particular capsule . There may further be applied to each capsule a unique machine readable code such as a bar code . There may also be included on the capsule or a closure an automatic visual indicator such as a pH color indicator device.

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US-PAT-NO: 5009894

DOCUMENT-IDENTIFIER: US 5009894 A

TITLE: Arrangement for and method of administering a pharmaceutical preparation

DATE-ISSUED: April 23, 1991

US-CL-CURRENT: 424/451, 206/469 , 206/470 , 206/532 , 206/534 , 206/540  
, 424/468  
, D9/302

APPL-NO: 7/ 227904

DATE FILED: May 11, 1988

PCT-DATA:

PCT-DATE-FILED: March 7, 1988

PCT-APPL-NO: PCT/US88/00868

PCT-371-DATE: May 11, 1988

PCT-102(E)-DATE: May 11, 1988

PCT-PUB-NO:

PCT-PUB-DATE:

----- KWIC -----

BSPR:

However, such large-sized bottles or containers are generally too large to fit

in one's pocket and, rather than being carried about, are generally stored in

one's medicine cabinet and thus are out of sight of the patient when the tablet/capsule is being orally taken. In the case where a patient takes multiple medications, the medications are often co-mingled in a pill box or

similar unmarked container, whereby the medications can be identified, if at

all, only by their size, shape and color and reference to a pharmaceutical text. Elderly patients, especially, may become confused when unmarked medications are present in an unmarked holder, and may possibly take the wrong

medication at the wrong time or exceed their recommended dosage of a given medication.

DEPR:

Also shown in FIG. 4 is a set of exemplary indicia applied, e.g., by printing,

onto the bottom surface 20 of the backing sheet 16. The indicia may include

the identification of the drug, instructions as to how to break open the packet, the dosage amount of the pharmaceutical preparation within the packet,

directions for use, the expiration date, a warning notice, and any other information which the drug manufacturer wishes to impart to the patient. The

indicia need not be applied only to the bottom surface 20 of the backing sheet;

they could equally as well be applied to the front surface thereof, or to the

covering member.

BSPR:  
The U.S. Pat. No. 3,889,591, patented June 17, 1975, discloses the use of a product transporting apparatus in a printing machine for automatically printing indicia on the opposite surfaces of tablets, pills, candies or any other solid products of any similar shape and/or size. The product transporting apparatus disclosed therein comprises first and second rotary drums of identical construction each having its outer peripheral surface formed with at least one circumferential row of radially inwardly recessed pockets arranged in circumferentially equally spaced relation to each other. The first and second rotary drums are adapted to be driven in the opposite directions with respect to each other, and the first rotary drum transports the products successively from a take-in position across a first printing station towards a transfer position where each of the pockets on the first rotary drum is lined up with a corresponding pocket on the second rotary drum for the transfer of the respective product from the first rotary drum onto the second rotary drum, and the second rotary drum transports the products, which have been transferred one by one from the first rotary drum, from the transfer position across a second printing station towards the take-out position.

US-PAT-NO: 3931884  
DOCUMENT-IDENTIFIER: US 3931884 A  
TITLE: Apparatus for transporting and orienting capsules  
DATE-ISSUED: January 13, 1976  
US-CL-CURRENT: 198/380,101/40

APPL-NO: 5/ 399817  
DATE FILED: September 24, 1973

----- KWIC -----

BSPR:  
In the cases of all such capsules, and in situations relating to many other pharmaceutical and other objects, it is often desirable to apply the printed indicia over a wide angle of surface curvature. For example, when the manufacturer has a long name, the name may be wrapped all the way around, or as much as 180.degree. of the circumference of the capsule or other

objects, or even more. This is effectively accomplished by causing the object to spin about its axis or center as the indicia are printed on the surface of the object. When the object is supported in a manner to allow slippage for freedom of rotation sufficient printing friction can be provided to eliminate any substantial slippage between the printing means and the surface printed upon.

US-PAT-NO: 4266478

DOCUMENT-IDENTIFIER: US 4266478 A

TITLE: Material orientation and printing apparatus and method

DATE-ISSUED: May 12, 1981

US-CL-CURRENT: 101/40,101/216 ,198/377.1

APPL-NO: 6/ 065337

DATE FILED: August 9, 1979

PARENT-CASE:

TECHNICAL FIELD This application is a continuation-in-part of U.S. application

Ser. No. 954,243, filed Oct. 24, 1978.

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BSPR:

During the processing of the capsules, which may be filled or empty, it is common practice to imprint indicia over the surface of the capsules, for example the name of the manufacturer or of the name or batch number of the material packaged within the capsule or other information required by the Food and Drug Administration or other agencies. This can be done by "spin printing" an elongated indicia on the capsule or by printing the capsule in another suitable manner. Spin printing is accomplished by causing the capsule to spin about its axis as the indicia is imprinted upon the surface of the capsule.

The capsules may be uniformly oriented or rectified prior to reaching the imprinting station whereby the capsules can be uniformly rotated during the imprinting operation. The rotation occurs in a manner which allows rotation of the capsule without substantial slippage between the imprinting head and the capsule surface whereby a sharp, precise, printed indicia can be produced on each capsule as it passes through the imprinting station.

US-PAT-NO: 4266477  
DOCUMENT-IDENTIFIER: US 4266477 A  
TITLE: Material orientation apparatus and method  
DATE-ISSUED: May 12, 1981  
US-CL-CURRENT: 101/40,198/380 ,198/384 ,198/393

APPL-NO: 5/ 954243  
DATE FILED: October 24, 1978

----- KWIC -----

BSPR:  
During the processing of the capsules which may be filled or empty, it is common practice to imprint indicia over the surface of the capsule, for example the name of the manufacturer or of the name or batch number of the material packaged within the capsule or other information required by the Food and Drug Administration or other agencies. This can be done by "spin printing" an elongated indicia on the capsule or by printing the capsule in another suitable manner. Spin printing is accomplished by causing the capsule to spin about its axis as the indicia is imprinted upon the surface of the capsule. The capsules may be uniformly oriented or rectified prior to reaching the imprinting station while the capsules can be uniformly rotated during the imprinting operation. The rotation occurs in a manner which allows rotation of the capsule without substantial slippage between the imprinting head and the capsule surface whereby a sharp, precise, printed indicia can be produced on each capsule as it passes through the imprinting station.

US-PAT-NO: 4500012  
DOCUMENT-IDENTIFIER: US 4500012 A  
TITLE: Capsule handling apparatus  
DATE-ISSUED: February 19, 1985  
US-CL-CURRENT: 221/173,221/266

APPL-NO: 6/ 383691  
DATE FILED: June 1, 1982

----- KWIC -----

BSPR:  
Medicinal compounds commonly are supplied in ingestible two-part capsules



having telescoping cap and body portions. It is the usual practice, in the preparation of such capsules, to imprint indicia on the surfaces of the capsules to indicate, for example, the name of the manufacturer or the batch from which the medicinal compound has been derived or to provide other information which may be required by the Food and Drug Administration or by other governmental agencies. Spin printing techniques often are used to imprint such capsules. Another commonly used technique involves printing on the capsule as the capsule axis is oriented in the direction of its movement past the printer.

US-PAT-NO: 4883180  
DOCUMENT-IDENTIFIER: US 4883180 A  
TITLE: Color coded medicine caps and labels for daily dosage  
DATE-ISSUED: November 28, 1989  
US-CL-CURRENT: 206/534

APPL-NO: 7/ 204584  
DATE FILED: June 9, 1988

----- KWIC -----

BSPR:

In the past, it has been the conventional practice to store a quantity of medicine in the form of pills or tablets in a cylindrical container having a cap which removably closes the container. It is also customary to place a label on the exterior surface of the container that includes certain information specifying the number of tablets or capsules to be taken, as well as the number of times the dosage is taken during a daily period.

US-PAT-NO: 5482008  
DOCUMENT-IDENTIFIER: US 5482008 A  
TITLE: Electronic animal identification system  
DATE-ISSUED: January 9, 1996  
US-CL-CURRENT: 119/174,128/899

APPL-NO: 8/ 204378  
DATE FILED: March 11, 1994  
FOREIGN-APPL-PRIORITY-DATA:  
FOREIGN-PRIORITY-APPL-NO: IE 3238/91  
FOREIGN-PRIORITY-APPL-DATE: September 13, 1991  
PCT-DATA:  
PCT-DATE-FILED: September 11, 1992  
PCT-APPL-NO: PCT/IE92/00009  
PCT-371-DATE: June 22, 1994

PCT-102(E)-DATE: March 11, 1994

PCT-PUB-NO: WO93/05648

PCT-PUB-DATE: April 1, 1993

DEPR:

The core 2 comprises a thin glass capsule 70 (e.g. with a wall thickness of about 2 to about 2.5 mm) which encloses the transponder 4 comprising a microchip code circuit 5, coil 6 and ferrite rod 34. The coil is of increased diameter relative to the diameter of the bolus (as compared to the previous embodiments) in order to increase the transmission range of the transponder. A label 11 bearing the visual representation of the identification code as both a bar code 15 and a number 16 is adhered to the outer surface of the coil so as to be visible through the glass capsule 70 and the plastics shell 3. Peelable label 12 is applied to the surface of the shell 3.

DEPR:

The capsule 80 is surrounded by a temporary protective outer casing 94 of biodegradable material which may suitably be of wax, gelatine or "papier mache". This outer casing 94 protects the glass capsule 80 from potential damage if it is dropped on a hard surface or otherwise suffers impact before it is administered to an animal. The casing also retains broken glass in the event that the capsule is accidentally broken. The peelable label 12 is carried on the outer casing 94. After insertion into the animal's rumen or reticulum, the outer casing 94 disintegrates. When the bolus is subsequently recovered from the animal, the visual representation of the code on the label 11 can be read through the glass capsule 80.

US-PAT-NO: 4140140

DOCUMENT-IDENTIFIER: US 4140140 A

TITLE: Combined toothbrush and pill dispenser

DATE-ISSUED: February 20, 1979

US-CL-CURRENT: 132/311,401/268

APPL-NO: 5/ 878815

DATE FILED: February 17, 1978

----- KWIC -----

ABPL:

A toothbrush or other hygienic device typically used regularly on a daily basis by the average person includes a handle in the form of a pill dispenser. The handle is constructed as a hollow tubular member and has openings in its longitudinal sides for holding the pills . Each pill is releasably sealed within one of the openings by plastic sheets, one of which is frangible to permit removal of a pill . The handle may be detachably connected to the remainder of the device and is closed at an open end thereof by a plug. The plug may be used to free a pill from its opening. Indicia is imprinted on the exposed surface of one of the plastic sheets to permit identification of each pill .

DERWENT-ACC-NO: 1988-235103  
 DERWENT-WEEK: 199902  
 COPYRIGHT 1999 DERWENT INFORMATION LTD

TITLE: Non-contact making marker for pellets - conveyed from feed hopper along conveyor system through the markings appts.

INVENTOR: ACKLEY, E M; ACKLEY, M E

PATENT-ASSIGNEE: ACKLEY E M[ACKLI], ACKLEY MACHINE CORP[ACKLN]

PRIORITY-DATA: 1987US-0011790 (February 6, 1987)

PATENT-FAMILY:

| PUB-NO       | PUB-DATE           | LANGUAGE | PAGES |
|--------------|--------------------|----------|-------|
| MAIN-IPC     |                    |          |       |
| WO 8805725 A | August 11, 1988    | E        | 033   |
| N/A          |                    |          |       |
| AU 8813471 A | August 24, 1988    | N/A      | 000   |
| N/A          |                    |          |       |
| EP 302920 A  | February 15, 1989  | E        | 000   |
| N/A          |                    |          |       |
| EP 302920 B1 | September 23, 1992 | E        | 017   |
| B41F 017/00  |                    |          |       |
| DE 3874840 G | October 29, 1992   | N/A      | 000   |
| B41F 017/00  |                    |          |       |
| CA 1330278 C | June 21, 1994      | N/A      | 000   |
| B41F 017/36  |                    |          |       |

DESIGNATED-STATES: AU DK FI HU JP KR NO SU AT BE CH DE FR GB IT LU NL SE  
 AT BE C  
 H DE FR GB IT LI LU NL SE AT BE CH DE FR GB IT LI LU NL SE

CITED-DOCUMENTS: US 2859689; US 2931292 ; US 2961087 ; US 3084781 ; US 3272118  
 ; US 3789575 ; US 3910183 ; US 3933239 ; US 4019187 ; US 4029006 ; US 4077317  
 ; US 4126219 ; US 4189996 ; US 4308942 ; US 4369702 ; US 4377971 ; US 4378564  
 ; US 4548825 ; US 4632028 ; DE 1163239 ; DE 3239955 ; US 4127219 ; US 4413556

APPLICATION-DATA:

| PUB-NO<br>DATE                        | APPL-DESCRIPTOR      | APPL-NO                      | APPL-           |
|---------------------------------------|----------------------|------------------------------|-----------------|
| WO 8805725A<br>5, 1988                | N/A                  | 1988WO-US00339               | February        |
| EP 302920A<br>5, 1988                 | N/A                  | 1988EP-0901728               | February        |
| EP 302920B1<br>5, 1988                | N/A                  | 1988EP-0901728               | February        |
| EP 302920B1<br>5, 1988                | N/A                  | 1988WO-US00339               | February        |
| EP 302920B1<br>DE 3874840G<br>5, 1988 | Based on<br>N/A      | WO 8805725<br>1988DE-3874840 | N/A<br>February |
| DE 3874840G<br>5, 1988                | N/A                  | 1988EP-0901728               | February        |
| DE 3874840G<br>5, 1988                | N/A                  | 1988WO-US00339               | February        |
| DE 3874840G<br>DE 3874840G            | Based on<br>Based on | EP 302920<br>WO 8805725      | N/A<br>N/A      |
| CA 1330278C<br>5, 1988                | N/A                  | 1988CA-0558229               | February        |

INT-CL\_(IPC): B41F017/00; B41F017/36 ; B65G047/14

RELATED-ACC-NO: 1990-123076;1991-110756 ;1995-262803 ;1997-414198 ;1998-376246  
 ;1999-022979 .

ABSTRACTED-PUB-NO: DE 3874840G

BASIC-ABSTRACT: Pellet shaped articles from a feed hopper are transported along a conveyor system past a marking appts. associated with the conveyor system where indicia is applied to the article surface without the marking appts. contacting the articles.

Indicia is applied by an ink jet printing device spaced 3 to 5mm from the article surface, using an FDA-approved ink, and operated in response to timing signals from the conveyor. A number of rows of articles may be fed beneath respective marking devices arranged side by side and fed from a common ink supply.

USE/ADVANTAGE - Applying indicia to the surface of candies, pharmaceutica

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capsules, tablets etc. Allows indicia to be applied to articles with fragile or uneven surfaces which could be damaged by contact printing or to which it is difficult to make contact.

ABSTRACTED-PUB-NO: EP 302920A

EQUIVALENT-ABSTRACTS: Pellet shaped articles from a feed hopper are transported along a conveyor system past a marking appts. associated with the conveyor system where indicia is applied to the article surface without the marking appts. contacting the articles. Indicia is applied by an ink jet printing device spaced 3 to 5mm from the article surface, using an FDA-approved ink, and operated in response to timing signals from the conveyor. A number of rows of articles may be fed beneath respective marking devices arranged side by side and fed from a common ink supply. USE/ADVANTAGE - Applying indicia to the surface of candies, pharmaceutical capsules, tablets etc. Allows indicia to be applied to articles with fragile or uneven surfaces which could be damaged by contact printing or to which it is difficult to make contact.

Le, Thien

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From: Le, Thien  
Sent: Friday, April 05, 2002 4:13 PM  
To: 'nicecavedude@yahoo.com'; 'uglycavedude@yahoo.com'  
Subject: RE:

Claims 1-3, 5-19, 12, 40-50 rejected under 35 U.S.C. 103(a) as being unpatentable over McLain (4,224,123) Hafner (5,181,189) Voss et al. (hereinafter Voss - 4,548,825) Gombrich et al. (hereinafter Gombrich - 4,818,850)

Voss discloses a method for ink-jet printing on uncoated tablets or uncoated tablet cores. In the background of the invention, Voss acknowledges that there are instances when it is appropriate to apply certain markings with regard to pharmaceutical moldings or similar moldings of foods, such as dextrosis or artificial sweeteners in tablet form. Examples of such markings, according to Voss, include a bisecting strip, a warning note, an identification code, and a symbol related to intended use, such as a bed for sleeping tablets or a fruit for vitamin tablets. However, the application of desired markings is difficult due to the small size of moldings to be marked as well as the often non-planar surface of such moldings, a problem which also frequently causes difficulties when normal printing procedures, such as, for example, the roller rotation method, are employed.

McLain discloses a method and apparatus for electro-polishing tablet compressing toolings. In the summary of the invention section, McLain acknowledges that the pharmaceutical industry has long used a variety of machines for forming by compression medicinal tablets from suitably prepared powders and such machines have normally employed tooling, often called punches, for contacting such powders and effecting such compression. Since the tablets are usually of a rounded, or partially rounded, external contour, said punches will normally have a concave tip on the working end thereof to form the tablet to the desired shape. Further, such punches will frequently have embossed or debossed indicia, such as a symbol, code number or a letter, to produce corresponding recessed or elevated indicia on the tablet surface. The indicia, thereby placed onto the tablet surface, is often very small and

the recesses in or elevations on the tablet contacting surface of the punch must be clean and sharp in order to produce an attractive looking product and in fact often in order for the indicia to be readable at all.

Gombrich discloses a method and apparatus for attaching bar code indicia on items. Figures 5 and 6 of Gombrich show that a bar code 19, a drug identifying name 14 and a drug identifying number 16 can be printed in a permanent fashion on the top surface of label layer 28 (also see Figures 7, 8, and 11).

Hafner discloses a device for the storage and time-regulated dispensing of drugs. According to Hafner, the device enables the user to load and store dosing routines with one move of the hand. For example, a dosing routine might require administration of an initial two pills three hours apart, followed by a gap of eight hours (overnight), followed by administration of single pills the next day on a three hour cycle, and so on. A bar code (28) containing dosage information is located on the drug container and is read in automatically when the signaling device and drug container are connected.

US-PAT-NO: 4835372  
DOCUMENT-IDENTIFIER: US 4835372 A  
TITLE: Patient care system  
DATE-ISSUED: May 30, 1989  
US-CL-CURRENT: 235/375,235/462.15 ,379/106.02

APPL-NO: 7/ 078195  
DATE FILED: July 24, 1987  
PARENT-CASE:

This is a continuation-in-part of Ser. No. 862,278 filed May 12, 1986 which, in turn, is a continuation-in-part of Ser. No. 757,277 filed July 19, 1985, both abandoned.

----- KWIC -----

DEPR:

Illustrated in FIG. 51 is a bar code label 540 which might be used in accordance with the principles of the present invention. In particular, the bar code label 540 shown has particular application for use with unit dosage packages of medication, although it will be appreciated that the bar code label 540 might be used in conjunction with any number of different items and/or with the patient's identification bracelet and/or bar code holder apparatus as previously discussed. The bar code label 540 shown is a continuous strip having a longitudinally extending continuous bar code indicia 541 printed on a top surface thereof. Also included is a drug identifying name 542, a drug identifying number 543, a dosage identifier 544, and an identifier 545 identifying the form of the medication, that is, tablet, capsule, etc. The longitudinally extending bar code indicia 541 extends along a bottom edge 546 while the additional human recognizable information lies along top edge 547. The bar code label is made of a synthetic material having substantial tensile strength in the longitudinal direction, and further is toothed and/or slitted with slits 548 so as to enable the bar code label 540 to be readily torn in the transverse direction. A back surface of the bar code label 540 preferably includes an adhesive along the top edge 547 for attachment to unit medication dosage packages or other items. In addition, the adhesive is preferably covered by a releasable backing material. The bar code label 540 is preferably dispensed from a suitable bar code dispenser apparatus as disclosed in applicant's co-pending application, Ser. No. 072102, filed July 10, 1987.

US-PAT-NO: 5231938

DOCUMENT-IDENTIFIER: US 5231938 A

TITLE: System for containment and handling of hazardous materials

DATE-ISSUED: August 3, 1993

US-CL-CURRENT: 110/346, 110/235, 206/524.1, 206/524.5, 588/249

APPL-NO: 7/ 816388

DATE FILED: December 24, 1991



----- KWIC -----

BSPR:

In one preferred embodiment each capsule has a visual identifying means on its surface for indicating the type of material contained in the capsule . This may comprise a background color on the capsule to indicate generically a type of material in the capsule (such as acid, base, corrosive, flammable, etc.), and one or more color bands different from the background color, to indicate more specifically the material in the particular capsule . There may further be applied to each capsule a unique machine readable code such as a bar code . There may also be included on the capsule or a closure an automatic visual indicator such as a pH color indicator device.

11

US-PAT-NO: 5502944  
DOCUMENT-IDENTIFIER: US 5502944 A  
TITLE: Medication dispenser system  
DATE-ISSUED: April 2, 1996  
US-CL-CURRENT: 53/55,221/2 , 53/168 , 53/498 , 53/504 , 700/236 , 700/242  
  
APPL-NO: 8/ 161899  
DATE FILED: December 3, 1993

----- KWIC -----

BSPR:

The efficient and accurate distribution of medication in a hospital is an extremely important facet of patient care. In a typical hospital setting, medication orders are initiated by a physician, who contacts a pharmacist in the hospital's pharmacy. In response to the physician's request, the pharmacist enters information into the hospital's pharmacy computer system, which is typically implemented on a mainframe computer. The pharmacy computer

system maintains a database of information concerning each patient in the hospital and performs a number of functions necessary to enable the pharmacy to efficiently distribute medications. For example, the pharmacy computer system maintains information on each patient, such as the patient's location in the hospital, whether the patient has any allergies to medication, the diagnosis, if any, for the patient, the patient's primary physician, the patient's personal data (height, weight, age, blood type), the date of admission, and so on. Further, the pharmacy computer system maintains a database of medications which may be ordered by the physicians. This database may include, for example, the NDC code for the medication, the manufacturer, the brand name, the generic name, the dosage form, the location of the drug in the pharmacy, and pricing information. For each medication ordered for a patient, the pharmacy system maintains a database of the medication ordered, the frequency of administration, start and stop dates (and times) for administration, and the nursing station to which the medication should be delivered. Pharmacy computer systems have been widely available since at least 1985. Their availability has greatly increased the accuracy and efficiency of the hospital pharmacy.

BSPR:

In another aspect of the present invention, various containers for storing bulk medication, such as pills, and for storing irregular shaped medications, such as syringes, ampules and vials, are provided.

DRPR:

FIGS. 10a-c illustrate flow charts describing operation of the robotics and vision subsystems to dispense a single pill from the bulk medication dispenser of FIGS. 8 and 9;

DRPR:

FIGS. 11a-f illustrate pill configurations and respective energy profiles used in the vision subsystem singulation process;

DEPR:

The vision subsystem 44 comprises two optics systems, singulation optics 124 and a container identification optics 126. The container identification optics 126 may comprise, for example, a bar code or a block code scanner. The

container identification optics 126 reads a label disposed on the outside of each container which identifies its contents. The contents (as defined by the label) of a chosen container is compared with the specified medication in order to verify that the correct medication is being dispensed. The container identification optics, in conjunction with the control electronics, also determines whether the medication in the module has reached its expiration date.

DEPR:

FIGS. 8-9 illustrate a container 130 used to dispense single units of bulk medication, such as pills, tablets and the like. This container is the subject

matter of U.S. Pat. No. 5,213,232, to Kraft et al., issued May 25, 1993, and

assigned to the assignee-of-interest, which is incorporated by reference herein. The bulk medication container 130 comprises a container portion 132

for containing a plurality of pills 134 in bulk form. Inside the container

portion 132, there is a helical ridge 136 which acts as a ramp for the pills.

Interface 138 couples the container to the receptacles 88 of the carousel subsystem 42. Interface 140 interfaces the container 130 with the robotics

subsystem. A cap 142 is used to seal the container 130 while the pills 134 are

stored outside the dispenser 12; to load the container 130 into the dispenser

12, the cap 142 is removed and the interface 138 is attached to a receptacle

88. A label 144 is adhered to the exterior of the container 130. The label

144 contains information on the medication stored within container 130. This

information is used for the database internal to the dispenser 12 and for verification prior to dispensing medication. The label 144 can take a variety

of formats, such as one of a number of bar codes or block codes.

DEPR:

To load a pill (or other medication unit) into the holding area, the container

130 is rotated 270.degree. (or another predetermined angle) about the roll

axis 115 by the roll motor 117 then is rotated 270.degree. in the opposite

direction. When the end effector rotates about the roll axis 115, medication

units travel up the helical ridge 136 in single file. The end effector 112

stops rotating when either three rotation cycles have been completed without

detecting a pill in the holding area (decision block 158) or one or more pills are detected in the holding area (decision block 160). In the preferred embodiment, if three rotation cycles are completed without the detection of any pills in the holding area, the pitch angle is decreased by one degree and the rotation count is reset in 162. Thereafter, the sequence provided by block 156, 158 and 160 is repeated. When one or more pills are detected in the holding area (block 160), the rotation of the container 130 is stopped in block 164. If more than one pill is identified in the holding area 152 in block 166, the container is rotated one full rotation in the opposite direction to return all pills from the holding area 152 to the container (block 168). Also, the pitch angle is increased by one degree and the rotation count is reset. Thereafter, the robotics subsystem continues rotation of the container at block 156. If a single pill is identified in the holding area in block 166, the pitch angle of the container 130 is increased (block 170) in order to return any remaining pills on the helical ridge 136 to the bottom of the container, such that no pills will transfer from the helical ridge 136 to the holding area 152 during subsequent movement of the container 130.

DEPR:

In FIG. 10b, the detection of medication units in the holding area 152 is described in greater detail. In decision block 172, an energy profile is monitored to determine whether one or more pills are in the holding area 152.

The energy profile is generated from the light reflected off the pills in the holding area and received by the singulation optics 124. To enhance the energy profile, the optics may include LED's or another light emitting device to increase the amount of light. The image from the singulation optics 124 is transferred to the frame grabber 80.

DEPR:

FIGS. 11a-e illustrate the profiles associated with various orientations of pills in the discharging element 146. In FIG. 11b, the energy profile for a single round tablet (see FIG. 11a) is shown. The energy profile is derived by

the control electronics from the output of the singulation optics, which is captured by the frame grabber 80 as needed. The control electronics 36

performs image processing on the data contents of the frame grabber 80 to derive the energy profile corresponding to the pills disposed in the discharging element 146.

DEPR:  
In FIGS. 11a-b, a single pill and its energy profile 174 are illustrated. As can be seen, the energy profile 174 is relatively smooth. In FIGS. 11c-d, an energy profile for pills which are side-by-side or partially overlapping is shown. Responsive to the outline of the pills in FIG. 11c, a corresponding energy profile 176 is generated. The energy profile 176 has a cusp 178 corresponding to the cusp 180 found between the two pills 134 in the discharging element 146.

DEPR:  
Referring again to FIG. 10b, so long as the energy profile is null, a signal is asserted indicating that there are no pills in the discharging element 146. Assertion of this signal causes the robotics to rotate the container (until the three rotations are complete). Once one or more pills are disposed within the discharging element 146, the energy profile is no longer null in block 172 and thus, in block 184, the energy profile is analyzed to determine whether there are any cusps. If a cusp is found in decision block 186, a "multiple pill" signal is asserted by the control electronics 36. If no cusp is found, then the "single pill" signal is asserted by the control electronics 36. The "multiple pill" signal and "single pill" signal are used in decision block 166 of FIG. 10a.

DEPR:  
FIG. 10c and FIGS. 11e-f illustrate a second embodiment of the present invention wherein a pill-specific profile is compared with the profile generated by the singulation optics 124 and the control electronics 36 to determine whether more than one pill is loaded in the holding area 152.

DEPR:  
Whereas the singulation method shown in FIG. 10b and FIGS. 11a-d is pill-independent, i.e., it can be used without any information regarding the type of pills being singulated, the method shown in FIGS. 10c and 11e-f use pill-specific information to improve the quality of the singulation process. This embodiment is useful for use with odd-shaped pills, such as the bow-tie

shaped pill 134 shown in FIG. 11e, which would produce an energy profile 190 shown in FIG. 11f. Such a profile may be interpreted as having a cusp which would indicate multiple pills under the previously described embodiment, even though a single pill was in the discharging element 146.

DEPR:

In this embodiment, pill -specific information is retrieved in block 192 of FIG. 10c which corresponds to the profile which should be obtained if a single pill is in the discharging element 146. The pill -specific information may be stored in a database in the memory of the control electronics 36 or may be specified on the label 144. Information in the profile would include, for example, the height, depth, and width dimensions of the pill and shape type, such as round, capsule, oblong and bow-tie. The pill -specific information is used in a three dimensional comparison with the profile determined from the image provided by the singulation optics 124 in block 196. If the energy profile matches within a given threshold in decision block 198, the "single pill " signal is asserted in block 200. If there is not a match in block 198, the "multiple pill " signal is asserted in block 202.

DEPR:

The pill -specific approach is also useful for capsules, where two or more capsules may overlap in the holding area. Because of the shape of the capsules, a cusp may not be apparent from the energy profile. However, the width dimension would be in excess of the pill -specific dimension, and would therefore cause a multiple pill signal. Further, the pill -specific approach may be useful in an embodiment where a predetermined number of pills greater than one are being detected.

DEPR:

Even using pill -specific information, it is possible that singulation errors may occur, albeit rarely, if two pills are positioned such that one pill is directly in front of the other. This situation can be overcome by using two cameras to view the holding area 152 from different directions (or by adjusting

the position of the holding area relative to the camera to provide two or more views) such that one pill cannot completely obscure the other.

DEPR:

After the opening 334 is formed, the container 90 is rotated to drop the medication unit into the opening. A "light curtain" is directed across the width of the pocket 314 by light source 306. The light curtain travels through slits 338a-b formed in vacuum arms 330 and 332, respectively, and the light produced thereby is detected by a detector 340. The detector 340 outputs a signal indicating whether the curtain of light is broken, thereby indicating whether the pill from the container 130 (or other medication unit from container 210) has landed in the package.

DEPR:

After the pill is detected, the package is driven down its path by roller drive 342 and the opening 334 is closed and sealed.

DEPR:

It is important to note that both bulk medication containers 130 and module containers 210 can be used to drop units directly into the package 314. Since the medication drops directly through the opening 334 into the pocket 314, there is no cross-contamination, i.e., medication units do not touch a surface which has been touched by a medication unit of another type. Cross-contamination is a particular problem in systems which require a funnel or ramp to guide medication into the package, since the funnel or ramp will become contaminated by each pill with which it comes in contact.

CLPR:

23. The apparatus of claim 21 wherein said subsystem further comprises processing circuitry for comparing said image with pill -specific information to determine whether a single pill is present in said holding area.

CLPR:

24. The apparatus of claim 23 and further comprising a database coupled to said processing circuitry for storing said pill -specific information.

CLPR:

25. The apparatus of claim 23 wherein said pill -specific information includes pill dimension and shape information.

NO: 5367148  
DOCUMENT-IDENTIFIER: US 5367148 A  
TITLE: Counterfeit detection using ID numbers with at least one random  
portion  
DATE-ISSUED: November 22, 1994  
US-CL-CURRENT: 235/375,283/901 ,340/5.86

APPL-NO: 7/ 669904  
DATE FILED: March 15, 1991  
PARENT-CASE:  
This application is a continuation in part of copending application Ser.  
No.  
07/420,101, filed Oct. 11, 1989, titled "OPTIMAL, ERROR-DETECTING,  
ERROR-CORRECTING AND OTHER CODING AND PROCESSING, PARTICULARLY FOR BAR  
CODES,  
AND APPLICATIONS THEREFOR SUCH AS COUNTERFEIT DETECTION," and this  
application  
is a continuation in part of copending application Ser. No. 292,569,  
filed  
Dec. 30, 1988, titled "INFORMATION TRANSFER AND USE, PARTICULARLY WITH  
RESPECT  
TO COUNTERFEIT DETECTION," which is a continuation of application Ser.  
No.  
853,745, filed Apr. 18, 1986, now U.S. Pat. No. 4,814,589, titled  
"INFORMATION TRANSFER AND USE, PARTICULARLY WITH RESPECT TO OBJECTS SUCH  
AS  
GAMBLING CHIPS," the disclosures of all of which are incorporated herein  
by  
reference.

----- KWIC -----

BSPR:  
When an object, such as a product or document, is worth disproportionately  
more  
than the cost of its manufacture, it may be counterfeited at a profit.  
For  
example, manufacturers of proprietary products lose billions of dollars  
each  
year because their most successful products are often targeted by  
counterfeiters who produce spurious goods locally or overseas. When  
counterfeit goods are of similar or identical quality to the original, a  
manufacturer suffers from a continuous loss of sales as counterfeiting  
continues unchecked, because detection is difficult or impossible.  
Inferior  
counterfeit products may be more easily detected, but in addition to the  
above,  
they also jeopardize future sales of non-counterfeited products by marring  
reputation. In either case, the manufacturer's continuing level of  
untold lost  
profits due to counterfeit may be dramatic. Similar concerns arise with  
counterfeit documents.



DEPR:

ID numbers located on the outside of packaging are more accessible than ID numbers located inside the packaging, and may therefore more readily allow the possibility of a counterfeiter acquiring authorized ID numbers from the outside of genuine product packaging than from the inside (this may not be a significant risk in all cases). For example, a counterfeiter might bribe someone in a distributor's shipping/receiving department to accumulate "outside" authorized ID numbers with a concealable bar code reader so that they could be used later on counterfeit products. if this happened, the manufacturer could be back where he started, looking for duplicates, suffering the shortcomings mentioned above, or perhaps even being worse off because of a false sense of security.

DEPR:

If the first two random digits of inside ID numbers are correct, and only the last two random digits are wrong, the manufacturer need not go looking for incorrect outside ID numbers on any shelves, so to speak, because it is evident that the counterfeiter somehow acquired authorized (but truncated) outside ID numbers.

DEPR:

In this case the manufacturer is still not without help from the system computer, by which this discovered "leak" may be dealt with, and this now notorious counterfeiting ring broken. Indeed, it may well be possible to catch culprits "in the middle," by analyzing when the products with the copied outside ID numbers were manufactured and through what distribution channels they moved, as well as backtracking the source of the counterfeit product itself.

DEPR:

Also, an invisible ID number symbol placed over a product's UPC symbol, for counterfeit detection purposes, can be used for detecting expired product. For example, the date of the last-day-of-sale for limited shelf-life products may be stored in a supermarket's computer in association with ID numbers. For example, the expiration date for ID number bearing, Baby Safe Formula product, 3/21/91, may be stored in the computer along with the information that the 3/21/91 expiration date applies to Baby Safe Formula with ID numbers (serial portion only) 1,000,000 to 1,001,000.

DEPR:

Then, when ID numbers from Baby Safe Formula are read at a check out counter and sent to the supermarket's computer, their expiration dates may be looked up, and/or authenticity may be checked (in real time or in a nocturnal batch processing operation, using the common communication and counterfeit product computer system facilities mentioned above) and/or various lists may be checked (price, inventory, stolen goods, counterfeit with repeated ID numbers, contaminated goods, etc.) etc.

DEPR:

According to applicants' invention, another method may be used to automatically determine whether only one bar code symbol was present in a relevant area being scanned, or whether two bar code symbols located near each other were present.

Referring yet again to FIG. 3 by way of example, there is one ID number bar code symbol to the left near one UPC bar code symbol. For example, in a selected automatic dual mode of operation, bar code scanning apparatus could always sense for the presence of a UPC symbol, and when a UPC symbol is read, look up this particular UPC symbol in a computer listing (the price associated with each UPC symbol, for example, for milk, medicine and paper products, is looked up in a computer) to check the "invisible bar code also?" flag which, depending if this flag is on or off, automatically informs apparatus whether or not another bar code should also be read along with this UPC symbol. In other words, the computer stores the information for each UPC code that may be read, as to whether or not another bar code symbol should be present and should also be read. Also, more than one flag could be used, in order to inform, e.g., which other particular bar code symbol(s) should be present and should be read, or, if more than one, which one(s) should be read, etc.

DEPL:

The reason for truncation is described below. Use of such ID numbers on the outside of product packaging makes them readily accessible, and allows a "shopping" service contracted by the product's manufacturer, or an investigator, to read and store bar coded ID numbers from products, e.g.,

on  
store shelves, and then send them, for example using a modem, to the  
manufacturer's system registration computer where the randomly selected  
portion  
of the ID numbers read from products can be checked against the stored  
list of  
complete authorized ID numbers, so that unauthorized ID numbers from  
counterfeit products may be detected. Thus, counterfeit products may be  
identified even before customer purchase, and authorities may be put on  
the  
trail of the perpetrators sooner. In enforcement proceedings, even good  
leads  
can get cold.

-----Original Message-----

**From:** Le, Thien  
**Sent:** Friday, April 05, 2002 4:12 PM  
**To:** 'nicecavedude@yahoo.com'; 'uglycavedude@yahoo.com'  
**Subject:**

US-PAT-NO: 4655026  
DOCUMENT-IDENTIFIER: US 4655026 A  
TITLE: Pill dispensing machine  
DATE-ISSUED: April 7, 1987  
US-CL-CURRENT: 53/55, 53/131.3 , 53/131.5 , 53/136.5 , 53/238 , 53/246  
, 53/64  
, 700/235

APPL-NO: 6/ 807754  
DATE FILED: December 11, 1985

----- KWIC -----

ABPL:

Disclosed herein is a pill dispensing machine which can selectively  
dispense a  
plurality of different medications into preformed recesses in a plastic  
strip.

The machine includes data entry means for entering the various types  
of

medications to be dispensed and the time and date at which such  
medications are

to be administered to the patient. The machine controls a plurality  
of

dispensing devices to dispense into each of the recesses one or more  
pills

associated with a particular time and date for administration. The  
machine

also includes printing means for printing the date and time of administration onto a backing label adapted to cover the recesses to form a wholly contained pill container. The machine also includes a conveyor mechanism for moving the plastic strips past the dispensing means and the label applying area so that, at the output of the machine, completed packages of pills ready for administration at the specified printed time can be given to the patient.

US-PAT-NO: 5573278  
DOCUMENT-IDENTIFIER: US 5573278 A  
TITLE: Identification and information carrying assembly  
DATE-ISSUED: November 12, 1996  
US-CL-CURRENT: 283/109,283/75

APPL-NO: 8/ 355040  
DATE FILED: December 13, 1994

----- KWIC -----

DEPR:

In accordance with the invention, assembly 10 preferably includes medication 54, such as a pill or pills, positioned and removably held between folded portions 14, 16, as illustrated in FIGS. 3 and 4. In addition, assembly 10 may include an information-containing micro film, micro fiche, laser disk, computer chip and/or a computer program 56 positioned and removably held between folded portions 14, 16. Medical and/or other information may also be positioned or stored within assembly 10 by means of a bar code (not shown) which can be located on any one of surfaces 26, 26', 28 or 28'.

US-PAT-NO: 4733362  
DOCUMENT-IDENTIFIER: US 4733362 A  
TITLE: Drug dispensing apparatus with a printer having programmable format  
DATE-ISSUED: March 22, 1988  
US-CL-CURRENT: 700/235,206/534 ,221/12 ,221/15 ,221/197 ,221/2 ,400/279 ,400/61 ,400/62 ,400/76 ,53/75

APPL-NO: 6/ 778033  
DATE FILED: September 20, 1985

FOREIGN-APPL-PRIORITY-DATA:

FOREIGN-PRIORITY-APPL-NO: JP 60-69773

FOREIGN-PRIORITY-APPL-DATE: April 2, 1985

----- KWIC -----

DEPR:

Referring also to FIG. 2, the drug packing mechanism 23 accommodated in the lower portion 11b of the dispensing unit 11 includes a roll 7 of a packaging sheet formed by winding a packaging sheet 6 folded double, an arm member 8 pivotally connected at its one end, to a frame (not shown) of the lower portion 11b and contacting at its other end. The surface of the sheet 6 applies a tension thereto. A printer 30 prints patients' names, code numbers, time for taking the drug doses, etc. on the packaging sheet 6. Line feed rollers 3 are driven by a stepping roller (not shown). A longitudinal heat seal mechanism 9 applies longitudinal seals to the packaging sheet 6 and has a blade 4 to form notches for providing separate packets. A hopper 2 communicates with the drop passage to hold the tablets introduced thereinto introduces the tablets into the separate packets upon opening of a shutter (not shown). A lateral heat seal mechanism H closes upper openings of the separate packets after accommodation of the tablets therein. A pair of feeding rollers 1 intermittently displaces the packaging sheet one at a time in the longitudinal direction by the length for one packet. The printer 30 is arranged to print necessary information on the sheet 6 in a direction intersecting at right angles with the longitudinal direction of the packaging sheet 6 as shown at 50 and 51 in FIG. 3 according to a predetermined format (to be described in more detail later).

US-PAT-NO: 5118369

DOCUMENT-IDENTIFIER: US 5118369 A

TITLE: Microlabelling system and process for making microlabels

DATE-ISSUED: June 2, 1992

US-CL-CURRENT: 156/64,235/462.01 ,250/566 ,283/81

APPL-NO: 7/ 572164

DATE FILED: August 23, 1990

----- KWIC -----

ABPL:

A method is disclosed for both making microlabels and for using these labels to provide a unique system for identifying an integrated circuit (IC) die on a wafer, in one embodiment, by applying a color bar encoded microlabel, small enough to be placed on the surface of the die, with the microlabel being on the order of 2 mm.times.2 mm in overall size. In one embodiment, the label consists of a number of colored lines or bars similar to a black/white bar code, with each bar having a distinct color or hue, the width of the bars being in the 5-120 micron range in terms of width, the bars being either contiguous or separated by a thin bar of distinct color. The microlabels, whether color bar or black/white coded, are applied preferably at the wafer probing stage of manufacture, wherein each die is labelled with the bar code best expressing the parameters the manufacturer is desirous of using for further processing and/or ultimate sales and/or use. A specialized real time photographic technique is disclosed in one embodiment for forming the ultra-small labelling lines on the microlabel's substrate, with the process enabling each microlabel to be different and manufactured on-the-fly to carry information associated with a given die. Further, each die may be labelled with additional microlabels in the subsequent stages of manufacture. Additionally, each capsule or device package containing a die may also be tagged with one or more microlabels. Other techniques for producing the microlabels, whether color coded or black and white, include vapor deposition, metallic colored foil layering, each of the above requiring shaving of layered sheets and deposition of colored strips in the furrows of etched or scribed sheets. In a further embodiment, ink jet stripes are laid down on a moving web or substrate in parallel multi-colored rows. The microlabels may be utilized in any application in which

product  
identification requires exceedingly small labels. Moreover,  
microlabels  
bearing other indicia such as letters or numerals, either with or  
without bar  
codes, offers IC manufacturers and others a unique microlabelling  
capability.

US-PAT-NO: 5181189  
DOCUMENT-IDENTIFIER: US 5181189 A  
TITLE: Device for the storage and time-regulated dispensing of drugs  
DATE-ISSUED: January 19, 1993  
US-CL-CURRENT: 368/10,206/534 ,221/2

APPL-NO: 7/ 125298  
DATE FILED: November 25, 1987

----- KWIC -----

DEPR:

This improved device enables the user to load and store even  
complicated dosing  
routines with one move of the hand. For example, a dosing routine  
might  
require administration of an initial two pills three hours apart,  
followed by a  
gap of eight hours (overnight), followed by administration of single  
pills the  
next day on a three hour cycle, and so on. The code containing this  
information may also be located on the drug container itself and read  
in  
automatically when the signaling device and drug container are  
connected. In  
this embodiment, the data input device generally is best situated in  
that  
portion of the signaling device which lies adjacent to a section of the  
surface  
of the drug container containing the encoded information. For  
example, if the  
signaling device has a plug-in slit into which the side edge of a  
blister pack  
is inserted--(see above noted West German patent 33 35 301) it may be  
very  
suitable to mount the input reader in the slit into which the blister  
pack is  
inserted. The information on the blister pack thus can be read in  
completely  
automatically when the blister pack is inserted into the opening of the  
signaling device.

US-PAT-NO: 5231938

DOCUMENT-IDENTIFIER: US 5231938 A  
TITLE: System for containment and handling of hazardous materials  
DATE-ISSUED: August 3, 1993  
US-CL-CURRENT: 110/346,110/235 ,206/524.1 ,206/524.5 ,588/249

APPL-NO: 7/ 816388  
DATE FILED: December 24, 1991

----- KWIC -----

BSPR:

In one preferred embodiment each capsule has a visual identifying means on its surface for indicating the type of material contained in the capsule . This may comprise a background color on the capsule, to indicate generically a type of material in the capsule (such as acid, base, corrosive, flammable, etc.), and one or more color bands different from the background color, to indicate more specifically the material in the particular capsule . There may further be applied to each capsule a unique machine readable code such as a bar code . There may also be included on the capsule or a closure an automatic visual indicator such as a pH color indicator device.

11

US-PAT-NO: 5009894  
DOCUMENT-IDENTIFIER: US 5009894 A  
TITLE: Arrangement for and method of administering a pharmaceutical preparation  
DATE-ISSUED: April 23, 1991  
US-CL-CURRENT: 424/451,206/469 ,206/470 ,206/532 ,206/534 ,206/540 ,424/468 ,D9/302

APPL-NO: 7/ 227904  
DATE FILED: May 11, 1988  
PCT-DATA:  
PCT-DATE-FILED: March 7, 1988  
PCT-APPL-NO: PCT/US88/00868  
PCT-371-DATE: May 11, 1988  
PCT-102(E)-DATE: May 11, 1988  
PCT-PUB-NO:  
PCT-PUB-DATE:

----- KWIC -----



BSPR:

However, such large-sized bottles or containers are generally too large to fit in one's pocket and, rather than being carried about, are generally stored in one's medicine cabinet and thus are out of sight of the patient when the tablet/capsule is being orally taken. In the case where a patient takes multiple medications, the medications are often co-mingled in a pill box or similar unmarked container, whereby the medications can be identified, if at all, only by their size, shape and color and reference to a pharmaceutical text. Elderly patients, especially, may become confused when unmarked medications are present in an unmarked holder, and may possibly take the wrong medication at the wrong time or exceed their recommended dosage of a given medication.

DEPR:

Also shown in FIG. 4 is a set of exemplary indicia applied, e.g., by printing, onto the bottom surface 20 of the backing sheet 16. The indicia may include the identification of the drug, instructions as to how to break open the packet, the dosage amount of the pharmaceutical preparation within the packet, directions for use, the expiration date, a warning notice, and any other information which the drug manufacturer wishes to impart to the patient. The indicia need not be applied only to the bottom surface 20 of the backing sheet; they could equally as well be applied to the front surface thereof, or to the covering member.

BSPR:

The U.S. Pat. No. 3,889,591, patented June 17, 1975, discloses the use of a product transporting apparatus in a printing machine for automatically printing indicia on the opposite surfaces of tablets, pills, candies or any other solid products of any similar shape and/or size. The product transporting apparatus disclosed therein comprises first and second rotary drums of identical construction each having its outer peripheral surface formed with at

least one  
circumferential row of radially inwardly recessed pockets arranged in  
circumferentially equally spaced relation to each other. The first and  
second  
rotary drums are adapted to be driven in the opposite directions with  
respect  
to each other, and the first rotary drum transports the products  
successively  
from a take-in position across a first printing station towards a  
transfer  
position where each of the pockets on the first rotary drum is lined up  
with a  
corresponding pocket on the second rotary drum for the transfer of the  
respective product from the first rotary drum onto the second rotary  
drum, and  
the second rotary drum transports the products, which have been  
transferred one  
by one from the first rotary drum, from the transfer position across a  
second  
printing station towards the take-out position.

US-PAT-NO: 3931884

DOCUMENT-IDENTIFIER: US 3931884 A

TITLE: Apparatus for transporting and orienting capsules

DATE-ISSUED: January 13, 1976

US-CL-CURRENT: 198/380,101/40

APPL-NO: 5/ 399817

DATE FILED: September 24, 1973

----- KWIC -----

BSPR:

In the cases of all such capsules, and in situations relating to many  
other  
pharmaceutical and other objects, it is often desirable to apply the  
printed  
indicia over a wide angle of surface curvature. For example, when  
the  
manufacturer has a long name, the name may be wrapped all the way  
around, or as  
much as 180.degree. of the circumference of the capsule or other  
objects, or  
even more. This is effectively accomplished by causing the object to  
spin  
about its axis or center as the indicia are printed on the surface of  
the  
object. When the object is supported in a manner to allow slippage for  
freedom  
of rotation sufficient printing friction can be provided to eliminate  
any  
substantial slippage between the printing means and the surface  
printed upon.

US-PAT-NO: 4266478  
DOCUMENT-IDENTIFIER: US 4266478 A  
TITLE: Material orientation and printing apparatus and method  
DATE-ISSUED: May 12, 1981  
US-CL-CURRENT: 101/40,101/216 ,198/377.1

APPL-NO: 6/ 065337  
DATE FILED: August 9, 1979  
PARENT-CASE:  
TECHNICAL FIELD This application is a continuation-in-part of U.S.  
application  
Ser. No. 954,243, filed Oct. 24, 1978.

----- KWIC -----

BSPR:  
During the processing of the capsules, which may be filled or empty,  
it is  
common practice to imprint indicia over the surface of the capsules,  
for  
example the name of the manufacturer or of the name or batch number of  
the  
material packaged within the capsule or other information required by  
the Food  
and Drug Administration or other agencies. This can be done by "spin  
printing"  
an elongated indicia on the capsule or by printing the capsule in  
another  
suitable manner. Spin printing is accomplished by causing the capsule  
to spin  
about its axis as the indicia is imprinted upon the surface of the  
capsule .  
The capsules may be uniformly oriented or rectified prior to reaching  
the  
imprinting station whereby the capsules can be uniformly rotated  
during the  
imprinting operation. The rotation occurs in a manner which allows  
rotation of  
the capsule without substantial slippage between the imprinting head  
and the  
capsule surface whereby a sharp, precise, printed indicia can be  
produced on  
each capsule as it passes through the imprinting station.

US-PAT-NO: 4266477  
DOCUMENT-IDENTIFIER: US 4266477 A  
TITLE: Material orientation apparatus and method  
DATE-ISSUED: May 12, 1981

US-CL-CURRENT: 101/40,198/380 ,198/384 ,198/393

APPL-NO: 5/ 954243

DATE FILED: October 24, 1978

----- KWIC -----

BSPR:

During the processing of the capsules which may be filled or empty, it is common practice to imprint indicia over the surface of the capsule, for example the name of the manufacturer or of the name or batch number of the material packaged within the capsule or other information required by the Food and Drug Administration or other agencies. This can be done by "spin printing" an elongated indicia on the capsule or by printing the capsule in another suitable manner. Spin printing is accomplished by causing the capsule to spin about its axis as the indicia is imprinted upon the surface of the capsule . The capsules may be uniformly oriented or rectified prior to reaching the imprinting station while the capsules can be uniformly rotated during the imprinting operation. The rotation occurs in a manner which allows rotation of the capsule without substantial slippage between the imprinting head and the capsule surface whereby a sharp, precise, printed indicia can be produced on each capsule as it passes through the imprinting station.

US-PAT-NO: 4500012

DOCUMENT-IDENTIFIER: US 4500012 A

TITLE: Capsule handling apparatus

DATE-ISSUED: February 19, 1985

US-CL-CURRENT: 221/173,221/266

APPL-NO: 6/ 383691

DATE FILED: June 1, 1982

----- KWIC -----

BSPR:

Medicinal compounds commonly are supplied in ingestible two-part capsules having telescoping cap and body portions. It is the usual practice, in the preparation of such capsules, to imprint indicia on the surfaces of

the  
capsules to indicate, for example, the name of the manufacturer or  
the batch  
from which the medicinal compound has been derived or to provide other  
information which may be required by the Food and Drug Administration  
or by  
other governmental agencies. Spin printing techniques often are used  
to  
imprint such capsules . Another commonly used technique involves  
printing on  
the capsule as the capsule axis is oriented in the direction of its  
movement  
past the printer.

US-PAT-NO: 4883180  
DOCUMENT-IDENTIFIER: US 4883180 A  
TITLE: Color coded medicine caps and labels for daily dosage  
DATE-ISSUED: November 28, 1989  
US-CL-CURRENT: 206/534

APPL-NO: 7/ 204584  
DATE FILED: June 9, 1988

----- KWIC -----

BSPR:  
In the past, it has been the conventional practice to store a quantity  
of  
medicine in the form of pills or tablets in a cylindrical container  
having a  
cap which removably closes the container. It is also customary to  
place a  
label on the exterior surface of the container that includes certain  
information specifying the number of tablets or capsules to be taken,  
as well  
as the number of times the dosage is taken during a daily period.

US-PAT-NO: 5482008  
DOCUMENT-IDENTIFIER: US 5482008 A  
TITLE: Electronic animal identification system  
DATE-ISSUED: January 9, 1996  
US-CL-CURRENT: 119/174,128/899

APPL-NO: 8/ 204378  
DATE FILED: March 11, 1994  
FOREIGN-APPL-PRIORITY-DATA:  
FOREIGN-PRIORITY-APPL-NO: IE 3238/91  
FOREIGN-PRIORITY-APPL-DATE: September 13, 1991  
PCT-DATA:  
PCT-DATE-FILED: September 11, 1992  
PCT-APPL-NO: PCT/IE92/00009

PCT-371-DATE: June 22, 1994  
PCT-102(E)-DATE: March 11, 1994  
PCT-PUB-NO: WO93/05648  
PCT-PUB-DATE: April 1, 1993

DEPR:

The core 2 comprises a thin glass capsule 70 (e.g. with a wall thickness of about 2 to about 2.5 mm) which encloses the transponder 4 comprising a microchip code circuit 5, coil 6 and ferrite rod 34. The coil is of increased diameter relative to the diameter of the bolus (as compared to the previous embodiments) in order to increase the transmission range of the transponder. A label 11 bearing the visual representation of the identification code as both a bar code 15 and a number 16 is adhered to the outer surface of the coil so as to be visible through the glass capsule 70 and the plastics shell 3. Peelable label 12 is applied to the surface of the shell 3.

DEPR:

The capsule 80 is surrounded by a temporary protective outer casing 94 of biodegradable material which may suitably be of wax, gelatine or "papier mache". This outer casing 94 protects the glass capsule 80 from potential damage if it is dropped on a hard surface or otherwise suffers impact before it is administered to an animal. The casing also retains broken glass in the event that the capsule is accidentally broken. The peelable label 12 is carried on the outer casing 94. After insertion into the animal's rumen or reticulum, the outer casing 94 disintegrates. When the bolus is subsequently recovered from the animal, the visual representation of the code on the label 11 can be read through the glass capsule 80.

US-PAT-NO: 4140140  
DOCUMENT-IDENTIFIER: US 4140140 A  
TITLE: Combined toothbrush and pill dispenser  
DATE-ISSUED: February 20, 1979  
US-CL-CURRENT: 132/311,401/268

APPL-NO: 5/ 878815

DATE FILED: February 17, 1978

----- KWIC -----

ABPL:

A toothbrush or other hygienic device typically used regularly on a daily basis by the average person includes a handle in the form of a pill dispenser. The handle is constructed as a hollow tubular member and has openings in its longitudinal sides for holding the pills . Each pill is releasably sealed within one of the openings by plastic sheets, one of which is frangible to permit removal of a pill . The handle may be detachably connected to the remainder of the device and is closed at an open end thereof by a plug. The plug may be used to free a pill from its opening. Indicia is imprinted on the exposed surface of one of the plastic sheets to permit identification of each pill .

DERWENT-ACC-NO: 1988-235103  
DERWENT-WEEK: 199902  
COPYRIGHT 1999 DERWENT INFORMATION LTD

TITLE: Non-contact making marker for pellets - conveyed from feed hopper along conveyor system through the markings appts.

INVENTOR: ACKLEY, E M; ACKLEY, M E

PATENT-ASSIGNEE: ACKLEY E M[ACKLI], ACKLEY MACHINE CORP[ACKLN]

PRIORITY-DATA: 1987US-0011790 (February 6, 1987)

PATENT-FAMILY:

| PUB-NO       | PUB-DATE           | LANGUAGE | PAGES |
|--------------|--------------------|----------|-------|
| MAIN-IPC     |                    |          |       |
| WO 8805725 A | August 11, 1988    | E        | 033   |
| N/A          |                    |          |       |
| AU 8813471 A | August 24, 1988    | N/A      | 000   |
| N/A          |                    |          |       |
| EP 302920 A  | February 15, 1989  | E        | 000   |
| N/A          |                    |          |       |
| EP 302920 B1 | September 23, 1992 | E        | 017   |
| B41F 017/00  |                    |          |       |
| DE 3874840 G | October 29, 1992   | N/A      | 000   |
| B41F 017/00  |                    |          |       |

CA 1330278 C  
B41F 017/36

June 21, 1994

N/A

000

DESIGNATED-STATES: AU DK FI HU JP KR NO SU AT BE CH DE FR GB IT LU NL  
SE AT BE C  
H DE FR GB IT LI LU NL SE AT BE CH DE FR GB IT LI LU NL SE

CITED-DOCUMENTS: US 2859689; US 2931292 ; US 2961087 ; US 3084781 ; US  
3272118  
; US 3789575 ; US 3910183 ; US 3933239 ; US 4019187 ; US 4029006 ; US  
4077317  
; US 4126219 ; US 4189996 ; US 4308942 ; US 4369702 ; US 4377971 ; US  
4378564  
; US 4548825 ; US 4632028 ; DE 1163239 ; DE 3239955 ; US 4127219 ; US  
4413556

APPLICATION-DATA:

| PUB-NO<br>DATE  | APPL-DESCRIPTOR             | APPL-NO                                   | APPL-      |
|---|-----------------------------|---|------------|
| WO 8805725A<br>February 5, 1988                               | N/A                         | 1988WO-US00339                            |            |
| EP 302920A<br>February 5, 1988                                | N/A                         | 1988EP-0901728                            |            |
| EP 302920B1<br>February 5, 1988                               | N/A                         | 1988EP-0901728                            |            |
| EP 302920B1<br>February 5, 1988                               | N/A                         | 1988WO-US00339                            |            |
| EP 302920B1<br>DE 3874840G<br>February 5, 1988                | Based on<br>N/A             | WO 8805725<br>1988DE-3874840              | N/A        |
| DE 3874840G<br>February 5, 1988                               | N/A                         | 1988EP-0901728                            |            |
| DE 3874840G<br>February 5, 1988                               | N/A                         | 1988WO-US00339                            |            |
| DE 3874840G<br>DE 3874840G<br>CA 1330278C<br>February 5, 1988 | Based on<br>Based on<br>N/A | EP 302920<br>WO 8805725<br>1988CA-0558229 | N/A<br>N/A |

INT-CL\_(IPC): B41F017/00; B41F017/36 ; B65G047/14

RELATED-ACC-NO: 1990-123076;1991-110756 ;1995-262803 ;1997-414198  
;1998-376246  
;1999-022979

ABSTRACTED-PUB-NO: DE 3874840G

BASIC-ABSTRACT: Pellet shaped articles from a feed hopper are  
transported along  
a conveyor system past a marking appts. associated with the conveyor  
system  
where indicia is applied to the article surface without the marking  
appts.  
contacting the articles.



Indicia is applied by an ink jet printing device spaced 3 to 5mm from the article surface, using an FDA-approved ink, and operated in response to timing signals from the conveyor. A number of rows of articles may be fed beneath respective marking devices arranged side by side and fed from a common ink supply.

USE/ADVANTAGE - Applying indicia to the surface of candies, pharmaceutical capsules, tablets etc. Allows indicia to be applied to articles with fragile or uneven surfaces which could be damaged by contact printing or to which it is difficult to make contact.

ABSTRACTED-PUB-NO: EP 302920A

EQUIVALENT-ABSTRACTS: Pellet shaped articles from a feed hopper are transported along a conveyor system past a marking appts. associated with the conveyor system where indicia is applied to the article surface without the marking appts. contacting the articles. Indicia is applied by an ink jet printing device spaced 3 to 5mm from the article surface, using an FDA-approved ink, and operated in response to timing signals from the conveyor. A number of rows of articles may be fed beneath respective marking devices arranged side by side and fed from a common ink supply. USE/ADVANTAGE - Applying indicia to the surface of candies, pharmaceutical capsules, tablets etc. Allows indicia to be applied to articles with fragile or uneven surfaces which could be damaged by contact printing or to which it is difficult to make contact.

US-PAT-NO: 4655026

DOCUMENT-IDENTIFIER: US 4655026 A

TITLE: Pill dispensing machine

DATE-ISSUED: April 7, 1987

US-CL-CURRENT: 53/55, 53/131.3 , 53/131.5 , 53/136.5 , 53/238  
, 53/246 , 53/64  
, 700/235

APPL-NO: 6/ 807754

DATE FILED: December 11, 1985

----- KWIC -----

ABPL:

Disclosed herein is a pill dispensing machine which can selectively dispense a plurality of different medications into preformed recesses in a plastic strip. The machine includes data entry means for entering the various types of medications to be dispensed and the time and date at which such medications are to be administered to the patient. The machine controls a plurality of dispensing devices to dispense into each of the recesses one or more pills associated with a particular time and date for administration. The machine also includes printing means for printing the date and time of administration onto a backing label adapted to cover the recesses to form a wholly contained pill container. The machine also includes a conveyor mechanism for moving the plastic strips past the dispensing means and the label applying area so that, at the output of the machine, completed packages of pills ready for administration at the specified printed time can be given to the patient.

US-PAT-NO: 5573278

DOCUMENT-IDENTIFIER: US 5573278 A  
TITLE: Identification and information carrying assembly  
DATE-ISSUED: November 12, 1996  
US-CL-CURRENT: 283/109,283/75

APPL-NO: 8/ 355040  
DATE FILED: December 13, 1994

----- KWIC -----

DEPR:

In accordance with the invention, assembly 10 preferably includes medication 54, such as a pill or pills, positioned and removably held between folded portions 14, 16, as illustrated in FIGS. 3 and 4. In addition, assembly 10 may include an information-containing micro film, micro fiche, laser disk, computer chip and/or a computer program 56 positioned and removably held between folded portions 14, 16. Medical and/or other information may also be positioned or stored within assembly 10 by means of a bar code (not shown) which can be located on any one of surfaces 26, 26', 28 or 28'.

US-PAT-NO: 4733362  
DOCUMENT-IDENTIFIER: US 4733362 A  
TITLE: Drug dispensing apparatus with a printer having programmable format  
DATE-ISSUED: March 22, 1988  
US-CL-CURRENT: 700/235,206/534 ,221/12 ,221/15 ,221/197 ,221/2 ,400/279 ,400/61 ,400/62 ,400/76 ,53/75

APPL-NO: 6/ 778033  
DATE FILED: September 20, 1985  
FOREIGN-APPL-PRIORITY-DATA:  
FOREIGN-PRIORITY-APPL-NO: JP 60-69773  
FOREIGN-PRIORITY-APPL-DATE: April 2, 1985

----- KWIC -----

DEPR:

Referring also to FIG. 2, the drug packing mechanism 23 accommodated in the lower portion 11b of the dispensing unit 11 includes a roll 7 of a packaging sheet formed by winding a packaging sheet 6 folded double, an arm member 8 pivotally connected at its one end, to a frame (not shown) of the lower portion 11B and contacting at its other end. The surface of the sheet 6 applies a tension thereto. A printer 30 prints patients' names, code numbers, time for taking the drug doses, etc. on the packaging sheet 6. Line feed rollers 3 are driven by a stepping roller (not shown). A longitudinal heat seal mechanism 9 applies longitudinal seals to the packaging sheet 6 and has a blade 4 to form notches for providing separate packets. A hopper 2 communicates with the drop passage to hold the tablets introduced thereinto introduces the tablets into the separate packets upon opening of a shutter (not shown). A lateral heat seal mechanism H closes upper openings of the separate packets after accommodation of the tablets therein. A pair of feeding rollers 1 intermittently displaces the packaging sheet one at a time in the longitudinal direction by the length for one packet. The printer 30 is arranged to print necessary information on the sheet 6 in a direction intersecting at right angles with the longitudinal direction of the packaging sheet 6 as shown at 50 and 51 in FIG. 3 according to a predetermined format (to be described in more detail later).

DOCUMENT-IDENTIFIER: US 5118369 A  
TITLE: Microlabelling system and process for making  
microlabels  
DATE-ISSUED: June 2, 1992  
US-CL-CURRENT: 156/64,235/462.01 ,250/566 ,283/81

APPL-NO: 7/ 572164  
DATE FILED: August 23, 1990

----- KWIC -----

ABPL:

A method is disclosed for both making microlabels and for using these labels to provide a unique system for identifying an integrated circuit (IC) die on a wafer, in one embodiment, by applying a color bar encoded microlabel, small enough to be placed on the surface of the die, with the microlabel being on the order of 2 mm.times.2 mm in overall size. In one embodiment, the label consists of a number of colored lines or bars similar to a black/white bar code, with each bar having a distinct color or hue, the width of the bars being in the 5-120 micron range in terms of width, the bars being either contiguous or separated by a thin bar of distinct color. The microlabels, whether color bar or black/white coded, are applied preferably at the wafer probing stage of manufacture, wherein each die is labelled with the bar code best expressing the parameters the manufacturer is desirous of using for further processing and/or ultimate sales and/or use. A specialized real time photographic technique is disclosed in one embodiment for forming the ultra-small labelling lines on the microlabel's substrate, with the process enabling each microlabel to be different and manufactured on-the-fly to carry information associated with a given die. Further, each die may be labelled with additional microlabels in

the subsequent stages of manufacture. Additionally, each capsule or device package containing a die may also be tagged with one or more microlabels. Other techniques for producing the microlabels, whether color coded or black and white, include vapor deposition, metallic colored foil layering, each of the above requiring shaving of layered sheets and deposition of colored strips in the furrows of etched or scribed sheets. In a further embodiment, ink jet stripes are laid down on a moving web or substrate in parallel multi-colored rows. The microlabels may be utilized in any application in which product identification requires exceedingly small labels. Moreover, microlabels bearing other indicia such as letters or numerals, either with or without bar codes, offers IC manufacturers and others a unique microlabelling capability.

US-PAT-NO: 5181189  
DOCUMENT-IDENTIFIER: US 5181189 A  
TITLE: Device for the storage and time-regulated dispensing of drugs  
DATE-ISSUED: January 19, 1993  
US-CL-CURRENT: 368/10,206/534 ,221/2

APPL-NO: 7/ 125298  
DATE FILED: November 25, 1987

----- KWIC -----

DEPR:  
This improved device enables the user to load and store even complicated dosing routines with one move of the hand. For example, a dosing routine might require administration of an initial two pills three hours apart, followed by a gap of eight hours (overnight), followed by administration of single pills the

next day on a three hour cycle, and so on. The code containing this information may also be located on the drug container itself and read in automatically when the signaling device and drug container are connected. In this embodiment, the data input device generally is best situated in that portion of the signaling device which lies adjacent to a section of the surface of the drug container containing the encoded information. For example, if the signaling device has a plug-in slit into which the side edge of a blister pack is inserted--(see above noted West German patent 33 35 301) it may be very suitable to mount the input reader in the slit into which the blister pack is inserted. The information on the blister pack thus can be read in completely automatically when the blister pack is inserted into the opening of the signaling device.

US-PAT-NO: 5231938

DOCUMENT-IDENTIFIER: US 5231938 A

TITLE: System for containment and handling of hazardous materials

DATE-ISSUED: August 3, 1993

US-CL-CURRENT: 110/346,110/235 ,206/524.1 ,206/524.5 ,588/249

APPL-NO: 7/ 816388

DATE FILED: December 24, 1991

----- KWIC -----

BSPR:

In one preferred embodiment each capsule has a visual identifying means on its surface for indicating the type of material contained in the capsule . This may comprise a background color on the capsule, to indicate generically a type of

material in the capsule (such as acid, base, corrosive, flammable, etc.), and one or more color bands different from the background color, to indicate more specifically the material in the particular capsule . There may further be applied to each capsule a unique machine readable code such as a bar code . There may also be included on the capsule or a closure an automatic visual indicator such as a pH color indicator device.

11

US-PAT-NO: 5009894  
DOCUMENT-IDENTIFIER: US 5009894 A  
TITLE: Arrangement for and method of administering a pharmaceutical preparation  
DATE-ISSUED: April 23, 1991  
US-CL-CURRENT: 424/451, 206/469 , 206/470 , 206/532 , 206/534 , 206/540 , 424/468 , D9/302

APPL-NO: 7/ 227904  
DATE FILED: May 11, 1988  
PCT-DATA:  
PCT-DATE-FILED: March 7, 1988  
PCT-APPL-NO: PCT/US88/00868  
PCT-371-DATE: May 11, 1988  
PCT-102(E)-DATE: May 11, 1988  
PCT-PUB-NO:  
PCT-PUB-DATE:

----- KWIC -----

BSPR:  
However, such large-sized bottles or containers are generally too large to fit in one's pocket and, rather than being carried about, are generally stored in one's medicine cabinet and thus are out of sight of the patient when the tablet/capsule is being orally taken. In the case where a patient takes



multiple medications, the medications are often co-mingled in a pill box or similar unmarked container, whereby the medications can be identified, if at all, only by their size, shape and color and reference to a pharmaceutical text. Elderly patients, especially, may become confused when unmarked medications are present in an unmarked holder, and may possibly take the wrong medication at the wrong time or exceed their recommended dosage of a given medication.

DEPR:

Also shown in FIG. 4 is a set of exemplary indicia applied, e.g., by printing, onto the bottom surface 20 of the backing sheet 16. The indicia may include the identification of the drug, instructions as to how to break open the packet, the dosage amount of the pharmaceutical preparation within the packet, directions for use, the expiration date, a warning notice, and any other information which the drug manufacturer wishes to impart to the patient. The indicia need not be applied only to the bottom surface 20 of the backing sheet; they could equally as well be applied to the front surface thereof, or to the covering member.

BSPR:

The U.S. Pat. No. 3,889,591, patented June 17, 1975, discloses the use of a product transporting apparatus in a printing machine for automatically printing indicia on the opposite surfaces of tablets, pills, candies or any other solid products of any similar shape and/or size. The product transporting apparatus disclosed therein comprises first and second rotary drums of identical

construction each having its outer peripheral surface formed with at least one circumferential row of radially inwardly recessed pockets arranged in circumferentially equally spaced relation to each other. The first and second rotary drums are adapted to be driven in the opposite directions with respect to each other, and the first rotary drum transports the products successively from a take-in position across a first printing station towards a transfer position where each of the pockets on the first rotary drum is lined up with a corresponding pocket on the second rotary drum for the transfer of the respective product from the first rotary drum onto the second rotary drum, and the second rotary drum transports the products, which have been transferred one by one from the first rotary drum, from the transfer position across a second printing station towards the take-out position.

US-PAT-NO: 3931884

DOCUMENT-IDENTIFIER: US 3931884 A

TITLE: Apparatus for transporting and orienting capsules

DATE-ISSUED: January 13, 1976

US-CL-CURRENT: 198/380,101/40

APPL-NO: 5/ 399817

DATE FILED: September 24, 1973

----- KWIC -----

BSPR:

In the cases of all such capsules, and in situations relating to many other pharmaceutical and other objects, it is often desirable to apply the printed indicia over a wide angle of surface curvature. For example, when the manufacturer has a long name, the name may be wrapped all the way around, or as

much as 180.degree. of the circumference of the capsule or other objects, or even more. This is effectively accomplished by causing the object to spin about its axis or center as the indicia are printed on the surface of the object. When the object is supported in a manner to allow slippage for freedom of rotation sufficient printing friction can be provided to eliminate any substantial slippage between the printing means and the surface printed upon.

US-PAT-NO: 4266478

DOCUMENT-IDENTIFIER: US 4266478 A

TITLE: Material orientation and printing apparatus and method

DATE-ISSUED: May 12, 1981

US-CL-CURRENT: 101/40,101/216 ,198/377.1

APPL-NO: 6/ 065337

DATE FILED: August 9, 1979

PARENT-CASE:

TECHNICAL FIELD This application is a continuation-in-part of U.S. application Ser. No. 954,243, filed Oct. 24, 1978.

----- KWIC -----

BSPR:

During the processing of the capsules, which may be filled or empty, it is common practice to imprint indicia over the surface of the capsules, for example the name of the manufacturer or of the name or batch number of the material packaged within the capsule or other information required by the Food and Drug Administration or other agencies. This can be done by "spin printing" an elongated indicia on the capsule or by printing the capsule in another

suitable manner. Spin printing is accomplished by causing the capsule to spin about its axis as the indicia is imprinted upon the surface of the capsule .

The capsules may be uniformly oriented or rectified prior to reaching the imprinting station whereby the capsules can be uniformly rotated during the imprinting operation. The rotation occurs in a manner which allows rotation of the capsule without substantial slippage between the imprinting head and the capsule surface whereby a sharp, precise, printed indicia can be produced on each capsule as it passes through the imprinting station.

US-PAT-NO: 4266477

DOCUMENT-IDENTIFIER: US 4266477 A

TITLE: Material orientation apparatus and method

DATE-ISSUED: May 12, 1981

US-CL-CURRENT: 101/40,198/380 ,198/384 ,198/393

APPL-NO: 5/ 954243

DATE FILED: October 24, 1978

----- KWIC -----

BSPR:

During the processing of the capsules which may be filled or empty, it is common practice to imprint indicia over the surface of the capsule, for example the name of the manufacturer or of the name or batch number of the material packaged within the capsule or other information required by the Food and Drug Administration or other agencies. This can be done by "spin printing" an elongated indicia on the capsule or by printing the capsule in another suitable manner. Spin printing is accomplished by causing the capsule to spin about its axis as the indicia is imprinted upon the surface of the capsule . The capsules

may be uniformly oriented or rectified prior to reaching the imprinting station while the capsules can be uniformly rotated during the imprinting operation. The rotation occurs in a manner which allows rotation of the capsule without substantial slippage between the imprinting head and the capsule surface whereby a sharp, precise, printed indicia can be produced on each capsule as it passes through the imprinting station.

US-PAT-NO: 4500012  
DOCUMENT-IDENTIFIER: US 4500012 A  
TITLE: Capsule handling apparatus  
DATE-ISSUED: February 19, 1985  
US-CL-CURRENT: 221/173,221/266

APPL-NO: 6/ 383691  
DATE FILED: June 1, 1982

----- KWIC -----

BSPR:  
Medicinal compounds commonly are supplied in ingestible two-part capsules having telescoping cap and body portions. It is the usual practice, in the preparation of such capsules, to imprint indicia on the surfaces of the capsules to indicate, for example, the name of the manufacturer or the batch from which the medicinal compound has been derived or to provide other information which may be required by the Food and Drug Administration or by other governmental agencies. Spin printing techniques often are used to imprint such capsules. Another commonly used technique involves printing on the capsule as the capsule axis is oriented in the direction of its movement past the printer.

US-PAT-NO: 4883180  
DOCUMENT-IDENTIFIER: US 4883180 A  
TITLE: Color coded medicine caps and labels for daily  
dosage  
DATE-ISSUED: November 28, 1989  
US-CL-CURRENT: 206/534

APPL-NO: 7/ 204584  
DATE FILED: June 9, 1988

----- KWIC -----

BSPR:

In the past, it has been the conventional practice to store a quantity of medicine in the form of pills or tablets in a cylindrical container having a cap which removably closes the container. It is also customary to place a label on the exterior surface of the container that includes certain information specifying the number of tablets or capsules to be taken, as well as the number of times the dosage is taken during a daily period.

US-PAT-NO: 5482008  
DOCUMENT-IDENTIFIER: US 5482008 A  
TITLE: Electronic animal identification system  
DATE-ISSUED: January 9, 1996  
US-CL-CURRENT: 119/174,128/899

APPL-NO: 8/ 204378  
DATE FILED: March 11, 1994  
FOREIGN-APPL-PRIORITY-DATA:  
FOREIGN-PRIORITY-APPL-NO: IE 3238/91  
FOREIGN-PRIORITY-APPL-DATE: September 13, 1991  
PCT-DATA:  
PCT-DATE-FILED: September 11, 1992  
PCT-APPL-NO: PCT/IE92/00009  
PCT-371-DATE: June 22, 1994  
PCT-102(E)-DATE: March 11, 1994  
PCT-PUB-NO: WO93/05648  
PCT-PUB-DATE: April 1, 1993

DEPR:

The core 2 comprises a thin glass capsule 70 (e.g. with a wall thickness of about 2 to about 2.5 mm) which encloses the transponder 4 comprising a microchip code circuit 5, coil 6 and ferrite rod 34. The coil is of increased diameter relative to the diameter of the bolus (as compared to the previous embodiments) in order to increase the transmission range of the transponder. A label 11 bearing the visual representation of the identification code as both a bar code 15 and a number 16 is adhered to the outer surface of the coil so as to be visible through the glass capsule 70 and the plastics shell 3. Peelable label 12 is applied to the surface of the shell 3.

DEPR:

The capsule 80 is surrounded by a temporary protective outer casing 94 of biodegradable material which may suitably be of wax, gelatine or "papier mache". This outer casing 94 protects the glass capsule 80 from potential damage if it is dropped on a hard surface or otherwise suffers impact before it is administered to an animal. The casing also retains broken glass in the event that the capsule is accidentally broken. The peelable label 12 is carried on the outer casing 94. After insertion into the animal's rumen or reticulum, the outer casing 94 disintegrates. When the bolus is subsequently recovered from the animal, the visual representation of the code on the label 11 can be read through the glass capsule 80.

TITLE: Combined toothbrush and pill dispenser  
DATE-ISSUED: February 20, 1979  
US-CL-CURRENT: 132/311,401/268

APPL-NO: 5/ 878815  
DATE FILED: February 17, 1978

----- KWIC -----

ABPL:

A toothbrush or other hygienic device typically used regularly on a daily basis by the average person includes a handle in the form of a pill dispenser. The handle is constructed as a hollow tubular member and has openings in its longitudinal sides for holding the pills . Each pill is releasably sealed within one of the openings by plastic sheets, one of which is frangible to permit removal of a pill . The handle may be detachably connected to the remainder of the device and is closed at an open end thereof by a plug. The plug may be used to free a pill from its opening. Indicia is imprinted on the exposed surface of one of the plastic sheets to permit identification of each pill .

DERWENT-ACC-NO: 1988-235103  
DERWENT-WEEK: 199902  
COPYRIGHT 1999 DERWENT INFORMATION LTD

TITLE: Non-contact making marker for pellets - conveyed from feed hopper along conveyor system through the markings appts.

INVENTOR: ACKLEY, E M; ACKLEY, M E

PATENT-ASSIGNEE: ACKLEY E M[ACKLI], ACKLEY MACHINE CORP[ACKLN]

PRIORITY-DATA: 1987US-0011790 (February 6, 1987)



## PATENT-FAMILY:

| PUB-NO       | PUB-DATE           | LANGUAGE |
|--------------|--------------------|----------|
| PAGES        | MAIN-IPC           |          |
| WO 8805725 A | August 11, 1988    | E        |
| 033          | N/A                |          |
| AU 8813471 A | August 24, 1988    | N/A      |
| 000          | N/A                |          |
| EP 302920 A  | February 15, 1989  | E        |
| 000          | N/A                |          |
| EP 302920 B1 | September 23, 1992 | E        |
| 017          | B41F 017/00        |          |
| DE 3874840 G | October 29, 1992   | N/A      |
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 3084781 ; US 3272118  
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 4029006 ; US 4077317  
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## APPLICATION-DATA:

| PUB-NO           | APPL-DESCRIPTOR | APPL-NO        |
|------------------|-----------------|----------------|
| APPL-DATE        |                 |                |
| WO 8805725A      | N/A             | 1988WO-US00339 |
| February 5, 1988 |                 |                |
| EP 302920A       | N/A             | 1988EP-0901728 |
| February 5, 1988 |                 |                |
| EP 302920B1      | N/A             | 1988EP-0901728 |
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| EP 302920B1      | N/A             | 1988WO-US00339 |
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| N/A              |                 |                |
| DE 3874840G      | N/A             | 1988DE-3874840 |
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| DE 3874840G      | N/A      | 1988EP-0901728 |
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| DE 3874840G      | N/A      | 1988WO-US00339 |
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| DE 3874840G      | Based on | WO 8805725     |
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| CA 1330278C      | N/A      | 1988CA-0558229 |
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ABSTRACTED-PUB-NO: DE 3874840G

BASIC-ABSTRACT: Pellet shaped articles from a feed hopper are transported along a conveyor system past a marking appts. associated with the conveyor system where indicia is applied to the article surface without the marking appts. contacting the articles.

Indicia is applied by an ink jet printing device spaced 3 to 5mm from the article surface, using an FDA-approved ink, and operated in response to timing signals from the conveyor. A number of rows of articles may be fed beneath respective marking devices arranged side by side and fed from a common ink supply.

USE/ADVANTAGE - Applying indicia to the surface of candies, pharmaceutical capsules, tablets etc. Allows indicia to be applied to articles with fragile or uneven surfaces which could be damaged by contact printing or to which it is difficult to make contact.

ABSTRACTED-PUB-NO: EP 302920A

EQUIVALENT-ABSTRACTS: Pellet shaped articles from a feed hopper are transported

along a conveyor system past a marking appts. associated with the conveyor system where indicia is applied to the article surface without the marking appts. contacting the articles. Indicia is applied by an ink jet printing device spaced 3 to 5mm from the article surface, using an FDA-approved ink, and operated in response to timing signals from the conveyor. A number of rows of articles may be fed beneath respective marking devices arranged side by side and fed from a common ink supply. USE/ADVANTAGE - Applying indicia to the surface of candies, pharmaceutical capsules, tablets etc. Allows indicia to be applied to articles with fragile or uneven surfaces which could be damaged by contact printing or to which it is difficult to make contact.